

Operational Matrix Approach for Distributed Order Fractional Differential Equations

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ABSTRACT

In this work, we propose a new approach based on Legendre wavelets for finding the approximate solution of distributed order fractional differential equations. The operational matrix of distributed order of Legendre wavelets is constructed and utilized to reduce the fractional differential equation into the system of linear algebraic equations by combining the Tau method and Legendre-Gauss Quadrature integration formula. Some test functions are included to show the usefulness of the method.

Keywords: Legendre wavelet, Operational matrix, Caputo's fractional derivative.

